

REMARKS

Prior to entry of this Amendment, Claims 57-59 were pending and under consideration. With this Amendment, Claims 57-59 are being canceled without prejudice against their reintroduction in this or one or more related applications. Claims 60-69 are being added. Thus, after entry of this Amendment, Claims 60-69 are pending and under consideration. The new claims and the rejections raised in the Office Action are discussed in detail below.

The Amendment of the Claims

Claims 60-69 have been added. Support for Claim 60 is found throughout the specification and drawings and particularly at pages 3-4, lines 31-25, pages 8-9, lines 16-24, page 27 lines 5-10, and page 38, lines 35-40. Support for Claims 61 and 62 is found at page 16, lines 30-37. Support for Claim 63 is found at page 3-4 lines 38-12. Support for Claims 64 and 65 is found at page 27 lines 5-10. Support for Claim 66 and 67 is found at page 38, lines 35-40. Support for Claim 68 is found at page 60, lines 31-40. Support for Claim 69 is found at page 16, lines 20-30. No new matter is added by the amendments. Accordingly, entry into the instant Application is proper and respectfully requested.

Claim Rejection Under 35 USC §102(b)

Claim 57 is rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Meade *et al.* (U.S. Patent No. 6,177,250). In particular, the Examiner asserts that Meade teaches providing an electrode with a covalently attached probe with a sequence substantially complementary to a first domain of a target sequence hybridization complexes having first and second ETMs with first and second redox potentials.

For an anticipation rejection under 35 U.S.C. §102 to be proper, a single reference must expressly or inherently disclose each and every element of a claim. *In re Paulsen*, 31 USPQ2d 1671, 1673 (Fed. Cir. 1994); MPEP § 2131 (citing *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)).

The rejection is moot in light of the cancellation of Claim 57. Applicant respectfully asserts that new Claims 60-69 are not anticipated by *Meade*. New independent Claim 60 provides in part, contacting an electrode with a target sequence, and a first label probe substantially complementary to the first domain, comprising a first nucleotide at an interrogation position and a first electron transfer moiety (ETM) with a first redox potential, and a second label probe substantially complementary to the first target domain, comprising a second nucleotide at the interrogation position and a second ETM with a second redox potential.

As *Meade* does not disclose each and every element of the independent Claim 60, *Meade* cannot anticipate Claim 60, and Claims 61-69, dependent thereon. Applicant respectfully submits that Claims 60-69 are in condition for allowance.

Claim Rejection Under 35 USC §102(e)

Claim 57 stands rejected under 35 U.S.C. § 102(e) as allegedly being anticipated over Blackburn *et al.* (U.S. Patent No. 6,686,150). In particular, the Examiner asserts *Blackburn* teaches a hybridization complex having a label probe with a first base at a detection position and an ETM with a first redox potential and asserts it teaches a label probe with a plurality of first ETMs.

For an anticipation rejection under 35 U.S.C. §102 to be proper, a single reference must expressly or inherently disclose each and every element of a claim. *In re Paulsen*, 31 USPQ2d 1671, 1673 (Fed. Cir. 1994); MPEP § 2131 (citing *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)).

Claim 57 has been canceled by the instant amendment making the rejection moot. Applicant respectfully asserts that new Claims 60-69 are not anticipated by *Blackburn*. Claim 60 provides in part, contacting an electrode with a target sequence, and a first label probe substantially complementary to the first domain, comprising a first nucleotide at an interrogation position and a first electron transfer moiety (ETM) with a first redox potential, and a second label probe substantially complementary to the first target domain, comprising a second nucleotide at the interrogation position and a second ETM with a second redox potential.

As *Blackburn* does not disclose each and every element of the independent Claim 60, *Blackburn* cannot anticipate Claim 60, and Claims 61-69, dependent thereon. Applicant respectfully submits that Claims 60-69 are in condition for allowance.

Claim Rejection Under 35 USC §103(a)

Claims 57-58 are rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over *Meade et al.* (U.S. Patent No. 6,177,250) in view of *Heller et al.* (U.S. Patent No. 5,605,662).

In rejecting claims under §103(a), the Patent Office bears the burden of establishing a *prima facie* case of obviousness (MPEP § 2142). To establish a *prima facie* case, three basic criteria must be met. First, the prior art reference(s) must teach or suggest each and every limitation of the rejected claims. Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine their teachings. Third, there must be a reasonable expectation of success. The teaching or suggestion to make the claimed combination *and* the reasonable expectation of success must *both* be found in the prior art, and *not* in Applicants' disclosure. *In re Vaeck*, 20 USPQ2d 1438 (Fed. Cir. 1991); MPEP §2142.

Claim 57 has been canceled by the instant amendment making the rejection moot. Applicant respectfully asserts that new Claims 60-69 are not obvious in light of *Meade* in view of *Heller*.

New independent Claim 60 is described above.

As set forth in the section above discussing anticipation, *Meade* fails to teach the method of determining the identification of nucleotide(s) set forth by Claim 60. Thus, *Meade* and *Heller* taken together fail to teach or suggest all of the elements of independent Claim 60. Therefore, Claims 60-69 are not obvious in view these references.

Further, as the Examiner is aware, there is no suggestion to combine if a reference teaches away from its combination with another source. *In re Fine*, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). A reference may be said to teach away

when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant . . . [or] if it suggests that the line of development flowing from the reference's disclosure is unlikely to be productive of the result sought by the applicant." *In re Gurley*, 27 F.3d 551, 553, 31 USPQ2d 1130, 1131 (Fed. Cir. 1994).

Heller teaches the design, fabrication, and uses of a self-addressable self-assembling microelectronic system and device which can actively carry out controlled multi-step and multiplex reactions in microscopic formats. In particular, *Heller* teaches the permeation layer provides spacing between a metal surface and a attachment/binding entity layers and allows solvent molecules, small counter-ions, and gases to freely pass to and from the metal surface. See Figure 2; cols. 10-11; 65-2. Further, *Heller* teaches that a functional device requires some fraction (-5% to 25%) of the actual metal micro-electrode surface to remain accessible to solvent (H₂O) molecules, and to allow the diffusion of counter-ions (e.g., Na⁺ and Cl⁻) and electrolysis gases (e.g., O₂ and H₂) to occur. The permeation layer should have a pore limit property which inhibits or impedes the larger binding entities, reactants, and analytes from physical contact with the micro-electrode surface and keeps the active microelectrode surface physically distinct from the binding entity layer of the micro-location. See col. 14 lines 41-54.

Applicant respectfully submits that *Heller* teaches away from electronic detection because the permeation layer is designed to keep the nucleic acids away from the electrodes, because *Heller* teaches a permeation layer which inhibits or impedes the larger binding entities, reactants, and analytes from physical contact with the electrodes. Accordingly, the cited art fails to teach or suggest the instant claims and respectfully submits that Claims 60-69 are in condition for allowance.

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CONCLUSION

Applicants respectfully submit that the claims are now in condition for allowance and early notification to that effect is respectfully requested. If the Examiner feels there are further unresolved issues, the Examiner is respectfully requested to phone the undersigned at (415) 781-1989.

Respectfully submitted,
DORSEY & WHITNEY LLP

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Customer No.: 32940

Four Embarcadero Center

Suite 3400

San Francisco, CA 94111-4187

Telephone: (415) 781-1989

Facsimile: (415) 398-3249

By: Michael Kolman

Michael F. Kolman, Reg. No. 54,234

Patent Agent for

Robin M. Silva, Reg. No. 38,304

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